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EXAMINER	
CORDRAY, DENNIS R	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/676,017	CHOU ET AL.	
	Examiner	Art Unit	
	Dennis Cordray	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *119-153,231 and 233-313* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *119-153,231 and 233-313* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 4/9/2007 have been fully considered and they are partially persuasive.

Applicant argues on pp 25-27 that the cited references do not teach, alone or in combination, all of the claimed features. In particular, applicant argues that, while Horimoto may state that the web structure could be obtained using wet or dry forming processes, no details are given of how the wet forming process is accomplished or the properties of the web. Applicant further argues that Horimoto only discloses dry sheet forming as examples and in the claims, thus avoiding the difficulties of a wet forming process. Applicant argues that the disclosure of Horimoto would not have motivated the skilled artisan to combine Anderson and Horimoto. Applicant also argues that neither Anderson nor Horimoto addresses problems associated with using hydrophilically modified thermoplastic fibers in a high speed wet forming process.

While the difficulty in dispersing thermoplastic fibers and obtaining good formation has been discussed and agreed upon, being difficult does not mean being impossible. The strongest rationale for combining references is a recognition, expressly or impliedly in the prior art or drawn from a convincing line of reasoning based on established scientific principles or legal precedent, that some advantage or expected beneficial result would have been produced by their combination. In re Sernaker, 702 F.2d 989, 994-95, 217 USPQ 1, 5-6 (Fed. Cir. 1983). Horimoto discloses an advantage or expected beneficial result in making the thermoplastic fibers hydrophilic, "much

improved absorbing properties" of the absorbent web (col 2, lines 26-32). "As long as some motivation or suggestion to combine the references is provided by the prior art taken as a whole, the law does not require that the references be combined for the reasons contemplated by the inventor." In re Beattie, 974 F.2d 1009, 1312, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992).

Anderson discloses a web comprising the claimed cellulosic and thermoplastic fibers made by a wet forming process. Horimoto discloses that the absorbing properties can be much improved by making the thermoplastic fibers hydrophilic by the claimed process. As admitted by Applicant, Horimoto also discloses that the web can be wet or dry formed. Why would it not have been obvious to one of ordinary skill in the art to combine the disclosures of the two references to provide the product of Anderson with much improved absorbing properties and to have a reasonable expectation of success? Once the thermoplastic fibers are made hydrophilic, the additional advantage of improved dispersibility would also have been realized.

Applicant argues on pp 28-30 that the combination of Anderson and Horimoto would not result in the claimed formation and SAT capacity because the Anderson teaches a paper product having a bonding material, preferably a latex, disposed through the surface regions to impart strength and abrasion resistance. Applicant argues that the highest absorbency disclosed in the examples of Anderson is 6.75 grams/gram and that the stratified examples exhibiting lower absorbency but higher strength are preferred. Applicant argues that, for the combination to work, the skilled artisan would

have had to remove the critical bonding material from the web of Anderson, make the thermoplastic fibers hydrophilic and use a wet formation process.

The arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); In re Geisler, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a prima facie case of obviousness."). No evidence has been provided to show that the web made by Anderson in view of Horimoto, Oku et al and Smook cannot have the claimed properties.

Applicant appears to be comparing the TWA of Anderson to the SAT capacity of the instant invention. The absorbency described by Anderson (total water absorbency or TWA) is not directly comparable with the SAT capacity of the instant invention because the methods of measurement of each are not sufficiently described to enable such comparison. In any case, the TWA of Anderson is for webs made without hydrophilic treatment to the thermoplastic fibers. Horimoto teaches that hydrophilic treatment increases the absorbing properties. Reasons for combining Anderson and Horimoto have been discussed and the combination results in a product having substantially the same structure as the instant invention, as claimed, and one of ordinary skill in the art would thus have expected to obtain the claimed properties in the product.

The use of the open language "comprising" in the instant claims allows for the bonding material of Anderson to be applied to the web. In addition, the instant claims

recite the use of dry strength additives, which are bonding materials. Smook teaches that dry strength additives are well known in the art and that the trend today is for increased usage of synthetic polymers such as latex or polyacrylamides either alone or in combination with starches and gums as dry strength additives (p 224, right col, first par). Thus the use of a latex with the claimed dry strength additives is known in the art. Applicant has provided no evidence showing that the use of latex would prevent the web of Anderson in view of Horimoto Oku et al and Smook from having the claimed properties.

Applicant argues on pp 30-31 that Anderson recites a preferred embodiment of a stratified layered web results in the separation of the thermally bondable fibers and the cellulosic fibers and the web made thereby would not have the claimed formation. Although a stratified headbox is preferred, Anderson discloses in several locations that the web can be formed homogeneously (p 6, lines 21-26; p 12, lines 7-10; p 19, lines 19-25). It is noted that instant claims 129, 133, 243, 247, 283 and 287 recite an embodiment wherein the papermaking and the thermally bondable fibers are stratified, whereas Claims 146, 260 and 300 recite an embodiment wherein the papermaking and the thermally bondable fibers are homogeneous. Thus the homogeneous and stratified character of the structures embodied by Anderson are the same as those claimed and one of ordinary skill in the art would have expected to obtain the claimed properties in the product.

Applicant argues on p 31 that Smook and Oku do not remedy the deficiencies of Anderson and Horimoto. Smook and Oku were used only to teach what was generally

known and applied by one of ordinary skill in the art at the time of the invention, that the claimed wet and dry strength additives, slotted screens and the speed of manufacturing of tissues are well known and typically used in the art.

With regard to the arguments against Schmidt, the reference was used to teach what was generally known and applied by one of ordinary skill in the art at the time of the invention, the use of wet and dry strength resins, wet pressing of a web and embossing of a web. That this knowledge was mknown in the art at the time of the invention is also taught in other references, therefore Schmidt is not used in the current rejections. In addition, other disclosures from Anderson et al are added to the current rejections.

The arguments with regard to Batra et al are convincing. Therefore, the rejection of Claims 119, 132, 233, 246, 273 and 286 under 35 U.S.C. 103(a) over Batra et al in view of others has been withdrawn.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 233-312 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 233, 271- 273, 311 and 312 recite lower limits for the SAT capacity of 7 grams/gram or 8 grams/gram. Applicant states that support is found in at least Figures 12, 33 and 34 and in claims 61 and 92 of the original Specification. The Examiner is unable to find the indicated support for the specific lower endpoints as claimed. The description for Figure 12 states that "FIG. 12 plots SAT capacity as a function of CD Wet Breaking length for a product according to the prior art versus traditionally produced products." The figure only describes prior art and traditionally produced products, thus cannot support claims for the instant invention. In any case, Figure 12 shows SAT values of below 3 g/g for CWP (black diamond) and about 6 g/g for 15% Bico/IRCURED (pattern-filled circle), none of which support a lower limit of 7 or 8 grams/gram as currently claimed. Figures 33 and 34 indicate SAT values as low as about 5.7 grams/gram for sheets comprising thermally bondable fibers (black square symbol, corresponding to 15% 2.9d PLA/PET, 20°), thus provide no basis for a lower limit of SAT of about 7 or about 8 grams/gram. Claims 61 and 92, as originally filed, recite an SAT of from about 5 g/g to about 14 g/g, thus provide no basis for a lower limit of SAT of about 7 or about 8 grams/gram.

The remaining rejected claims depend from and thus inherit the limitations of Claims 233 or 273.

Claim Rejections - 35 USC § 103

4. Claims 119-139, 141-153, 231, 233-245, 247-253, 255-280, 282-285, 287-293 and 295-313 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al (WO 96/12615) in view of Horimoto et al (4655877), Oku et al (5254399) and

(Smook, Handbook for pulp and Paper Technologists, 2nd ed, Angus Wilde Publications, 1992).

Claims 119-121, 129, 133, 137-138, 141-149, 231, 233-235, 243, 247, 251-252, 255-263, 268-275, 283, 287, 291-292, 295-303 and 308-312: Anderson et al discloses a method for making a fibrous web comprising:

a) forming an embryonic (nascent) web from a furnish made up of from 6-50% by weight bi-component fibers having a length from about 1/8 in to about ½ in (about 3 to 12.5 mm) and the remainder lignocellulosic fibers (wood fibers) either homogeneously or with a stratified headbox (p 6, lines 13-22; p 12, lines 5-11),

b) drying the web (p 13, lines 1-9).

The basis weight of the web is from 20-60 lb. 2880 sq. ft. ream (approx 21 to 62 lb/3000 sq. ft. ream), which significantly overlays the claimed range (p 6, lines 26-29). The bi-component fibers are made from polyester, polyolefins such as polyethylene, polyamides and polyacrylics (p 8, lines 18-22). The fiber composition and bi-component fiber length significantly overlay the claimed ranges.

When using a homogeneous furnish, the bi-component and lignocellulosic fibers are in the tissue are homogeneously arranged. Anderson et al discloses that, where a stratified headbox is used, the central core of the web is made up of a substantial amount of bi-component fibers, thus the web is stratified (p 6, lines 22-26, p 7, lines 6-11). The stratified headbox inherently requires at least two aqueous fiber dispersions, one comprising the bi-component fibers and one comprising the lignocellulosic fibers.

Note that the claims do not recite that cellulosic fibers cannot be present in the aqueous solution of bicomponent fibers and vice versa.

Anderson et al does not disclose that the bi-component fibers are modified to exhibit hydrophilicity by treatment with a nonionic surfactant. Anderson et al also does not disclose the line speed of the papermaking machine. Anderson et al does not disclose the formation index, wet breaking length or SAT of the web. Anderson et al does not disclose dispersing the fibers either sequentially or simultaneously. Anderson also does not disclose use of a slotted screen.

Horimoto et al discloses that the absorbent properties of a web can be improved by using short fibers of thermoplastic resin rendered hydrophilic by a introduction of a nonionic surfactant, then dehydrating the slurry (col 2, lines 26-36).

As discussed in a previous Office Action, Oku et al (col 6, lines 66-67) and Smook (p 239, last full par in right col and p 324, Table 21-1) teach that tissues are made at speeds from 400 m/min (1312 ft/min) on a slower papermaking machine up to 6890 ft/min on a fast machine.

As also discussed in a previous Office Action, Smook teaches that using fine slotted screens is a methodology commonly employed in modern papermaking systems to more effectively remove small cubical debris (p 111, first 3 pars in left col; p 229, first par in right col).

The art of Anderson et al, Horimoto et al, Oku et al, Smook and the instant invention is analogous as pertaining to the making of tissues comprising thermoplastic and cellulosic fibers, and to tissue making in general. It would have been obvious to

one of ordinary skill in the art at the time of the invention to make the product of Anderson et al at the claimed line speeds in view of Horimoto et al, Oku et al and Smook as typical line speeds used in the art. It would also have been obvious to render the bi-component fibers hydrophilic by introduction of a nonionic surfactant to enhance the absorbing properties of the web. Using a slotted screen in the formation process would further have been obvious as a commonly used method.

It would further have been obvious to one of ordinary skill in the art to obtain the claimed properties of formation index, wet breaking length and SAT in the web because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent. In the instant case, the claimed composition and method of making are disclosed by or would have been obvious over Anderson et al in view of Horimoto et al, Oku et al and Smook, thus obtaining a structure substantially the same as the claimed structure would have been obvious.

The instant Specification recites no particular advantage for the method of dispersing the fibers to form the papermaking furnish. The headbox deposits the furnish and fibers homogeneously to form the web and simultaneous dispersion or sequential dispersion of the fibers into the aqueous furnish are considered by the Examiner to be

functionally equivalent options that would have been obvious to one of ordinary skill in the art.

Claims 122-127, 150-153, 236-241, 264-267, 276-281, 304-307 and 313: Anderson et al and Horimoto et al do not disclose addition of wet or dry strength agents, formation of the tissue web by wet pressing, or embossing of the web.

Smook teaches that it is known in the art to use dry strength resins to improve burst and tensile strength and wet strength resins for retention of strength when a paper is wetted. Smook also teaches that the trend is toward the increased use of synthetic polymers such as latexes and polyacrylamides alone or in combination with starches and gums (pp 224-225). Smook lists many of the claimed wet and dry strength resins as known in the art (p 224, Table 15-4). Thus it is well known in the art to use the claimed wet and dry strength resins. Smook also teaches that wet pressing to remove water and consolidate the web may be considered as an extension of the water removal process that provides a more economical means of removing water from the web than by evaporation. Wet pressing reduces the evaporative load on the dryer section (p 250, section titled "16.9 PRESSING"). Smook further teaches that embossing is used to impart decorative effects to papers and napkins (tissues) (p 346).

It would have been obvious to one of ordinary skill in the art to add the claimed wet or dry strength agents to the product of Anderson et al in view of Horimoto et al, Oku et al and Smook as typical additives known in the art to improve burst and tensile strength and for retention of strength when a paper is wetted. Wet pressing and

embossing would also have been obvious steps to reduce the load on the dryers and to provide decorative effects on products.

Claims 130, 244 and 284: Anderson et al discloses that the dryer is a through air dryer (p 7, lines 15-17).

Claims 128, 131, 242, 245, 282 and 285: Anderson et al discloses that the web is creped from a Yankee dryer (p 9, lines 9-12; p 13, lines 1-10; p 14, line 14 to p 15 line 14).

Claims 134-136, 248-250 and 288-290: Anderson et al discloses that, prior to winding onto parent rolls, the web and bi-component fibers are cured in ovens at a temperature preferably between 220 and 320 °F, which significantly overlays the claimed range (p 9, line 25 to p 10, line 2).

Claims 139, 253 and 293: Anderson et al discloses that the bi-component fibers comprise polyester, polyolefins, such as polyethylene, polyamides and/or polyacrylics (p 8, lines 18-22).

5. Claims 119-124, 126-127, 130, 132, 134-141, 143-153, 231, 233-238, 240-241, 244, 246, 248-255, 257-278, 280-281, 284, 286 and 288-313 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cook et al (5360420) in view of Oku et al and Smook.

Claims 119-121, 134-138, 143-146, 151-153, 231, 233-235, 248-252, 257-260, 265-275, 288-292, 296-300 and 305-312: Cook et al discloses a method for making an

absorbent structure (fibrous web) (col 12, line 62 to col 13, line 50; col 17, lines 22-44) comprising

a. providing an aqueous slurry of intermixed (the Examiner interprets intermixed as equivalent to dispersed) fibers including cellulosic wood fibers and from about 10% to about 50% hydrophilic thermally bondable fibers that can be bi-component or tri-component fibers (col 10, line 60; col 14, lines 30-38; col 14, line 17 to col 15, line 14; col 19, lines 16-18),

b. depositing the fibers simultaneously on a wire and forming the fibers into a nascent web wherein the cellulosic and thermoplastic fibers are evenly distributed throughout ,

c. drying the web,

d. heating the web to melt the thermoplastic fibers and bond the web. The melting temperature of the thermoplastic is preferably between 75 °C and about 175 °C (167 to 347 °F), thus the disclosed temperature range significantly overlays the claimed range.

Cook et al discloses that the basis weight of the structure is from 0.001 to 0.10 g/cm^2 (approximately 7 to 700 lb/3000 ft^2 ream), which significantly overlays the claimed range.

Cook et al does not disclose the line speed of the papermaking machine. . Cook et al also does not disclose dispersing the fibers either sequentially or simultaneously. Cook et al further does not disclose the formation index, wet breaking length or SAT of the web. Cook does not disclose use of a slotted screen.

The disclosures of Oku et al and Smook are detailed above.

The art of Cook et al, Oku et al, Smook and the instant invention is analogous as pertaining to the making of tissues comprising thermoplastic and cellulosic fibers, and to tissue making in general. It would have been obvious to one of ordinary skill in the art at the time of the invention to make the product of Cook et al at the claimed line speeds in view of Oku et al and Smook as typical line speeds used in the art. Using a slotted screen in the formation process would further have been obvious as a commonly used method.

The web of Cook et al in view of Oku et al and Smook has substantially the same composition and structure as the instant invention, as claimed. For reasons given previously, it would have been obvious to one of ordinary skill in the art to obtain the claimed properties of formation index, wet breaking length and SAT in the web.

Also for reasons given previously, simultaneous dispersion or sequential dispersion of the fibers are considered by the Examiner to be functionally equivalent options that would have been obvious to one of ordinary skill in the art.

Claims 122-124, 126, 236-238, 240, 276-278 and 280: Cook et al discloses addition of wet and dry strength agents known in the art, including starch, polyamide-epichlorohydrin, urea-formaldehyde, melamine-formaldehyde and polyacrylamide resins; (col 16, lines 48-68). Thus Cook et al teaches that it is known in the art to use the claimed wet and dry strength resins in tissue products comprising thermoplastic fibers.

Claims 127, 130, 241, 244, 281 and 284: Cook et al discloses wet pressing (col 13, lines 45-50) for dewatering as well as through air drying (col 13, lines 64-66). Although wet pressing is less preferred, it is disclosed to achieve a consistency greater than 22% prior to drying.

Claims 132, 246, 286, Claims Cook et al discloses that the web is preferably not creped and preferably not dried on a Yankee dryer so as to prevent compaction of the web (col 14, lines 4-9).

Claims 139-140, 253-254 and 293-294: Cook et al discloses that the thermoplastic fibers can be made from polyester, polyethylene terephthalate, polyamides, polyethylene, polypropylene and other materials (col 14, line 68 to col 15, line 18). Although the specific polymers used in the bi-component and tri-component fibers is not given, it would have been obvious to one of ordinary skill in the art to use bi-component and tri-component fibers made from the disclosed polymers to obtain the same melting characteristics.

Claims 141, 255 and 295: The hydrophobic polymeric fibers can be made hydrophilic by treatment with a surfactant (inherently anionic, zwitterionic, cationic or non-ionic) (col 15, lines 8-10).

Claims 147-149, 261-263 and 301-303: Cook et al discloses that the thermoplastic fibers are preferably from about 0.3 to about 3.0 cm in length, which substantially overlaps the claimed values (col 18, lines 53-55).

Claims 150, 264, 304 and 313: Heat embossing is disclosed as one method to melt the thermoplastic fibers (col 19, lines 21-26).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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